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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/576,766	11/13/2006	Andrew Stuart Overend	066079-5129	8293

9629 7590 02/05/2009
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EXAMINER

BERMAN, SUSAN W

ART UNIT	PAPER NUMBER
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1796

MAIL DATE	DELIVERY MODE
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02/05/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/576,766	Applicant(s) OVEREND ET AL.	
	Examiner /Susan W. Berman/	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-7,9-11,13-15,17 and 18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5-7,9-11,13-15,17 and 18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Arguments

Applicant's arguments filed 12-12-2008 with respect to the rejection of claims under 35 U.S.C. 112, second paragraph, regarding the use of "BET" and "DBP" in claims 5, 6 and 18 to define the carbon black pigment have been fully considered and found persuasive. The rejection is hereby withdrawn.

The rejection of claims 1-2, 5-7, 9-11, 15 and 17 under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Nakajima (US 2003/0199612) is withdrawn in response to applicant's arguments. See Remarks, page 7 and description of Pigment Black 7 from Nation Master Encyclopedia.

The rejection of claims over WO '162 in view of Ikeda et al is maintained for the following reasons. Applicant argues that neither WO '162 nor Ikeda et al discloses that the disclosed pigments have an acid value greater than 8 mg NaOH/g. It is agreed that WO '162 does not teach acidic pigments. Although Ikeda et al do not specifically mention acid value, Ikeda et al clearly teach acidic carbon black in column 4, lines 25-38, that would be expected to have an acid value greater than 8 mg NaOH/g in the absence of evidence to the contrary. The difference from the instantly claimed invention is that the carboxyl groups are sites for grafting a polymer chain to the carbon black (column 4, lines 47-60). However, Ikeda et al clearly teach that the disclosed properties of the grafted carbon black, such as dispersibility and high electric resistance, make it useful in ink-jet inks (column 22, lines 57-65).

Applicant argues that an unexpected result, specifically decreased nozzle loss, is shown in Table 2 for the instantly claimed invention. The data in Table 2 has been considered and found unpersuasive because the claims are not commensurate in scope with the data presented. There is

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no showing that a pigment having an acid value greater than 8 mg NaOH/ g, such as 9 mg NaOH/g, provides unexpected results. The highest value of acid value in the comparative examples is 4.16 while an acid value of 27.8 is reported for the carbon black used in Example 1. There is no data for pigments other than carbon black. Further, it is not clear whether the pigments Regal 250R, Special Black 250 or Special Black 350 are representative of the carbon blacks taught by WO '162, which include Pigment Black 7 and Pigment Black 4 as well as Pigments of other colors..

New grounds of rejection are set forth herein below.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 5-7, 9-11, 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 03/027162 in view of Ikeda et al (6,417,283).

WO '162 discloses compositions for ink jet inks comprising a pigment, such as carbon black, radiation curable dispersant, mixture of (meth)acrylate monomers and photoinitiators. See pages 13-16. The radiation curable dispersant contains a polar component, such as an amine (page 8). Ink jet ink viscosity is taught on page 19, lines 17-26, and ink jet printing is taught on page 30. WO '162 does not mention the acid value or pH of the pigment employed.

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Ikeda et al disclose a carbon black graft polymer wherein the carbon black has a specific surface area not more than $120 \text{ m}^2/\text{g}$. The high carbon content carbon black graft polymer exhibits improved dispersibility in water, organic solvents and organic high polymers (column 1, lines 6-10, column 3, lines 1-12, and column 19, lines 40-47). Carbon black having a specific surface area not more than $120 \text{ m}^2/\text{g}$ and an oil absorption, regarding dibutylphthalate, not more than 70 ml/100g and pH value less than 7 is taught (column 2, lines 24-32, and column 3, line 48, to column 4, line 38). The carbon black graft polymer obtained by reacting a polymer having a reactive group reactive with a functional group on the carbon black is described (column 18, line 59, to column 19, line 15). Use in ink-jet inks taking advantage of the disclosed properties of the grafted carbon black is taught in column 22, lines 57-65. Ikeda et al teach compositions comprising the grafted carbon black and (meth)acrylate monomers for a toner (column 23, line 31, to column 25, line 35).

It would have been obvious to one skilled in the art at the time of the invention to employ the grafted carbon black having a pH less than 7 disclosed by Ikeda et al as the pigment in the compositions taught by WO '162. WO '162 provides motivation by teaching carbon black pigments for the disclosed ink jet inks. Ikeda et al provide motivation by teaching that the disclosed grafted carbon black has improved dispersibility in organic solvents and organic high polymers and by teaching its use in ink-jet inks. One skilled in the art at the time of the invention would have been motivated by a reasonable expectation of taking advantage of the improved dispersibility of the acidic grafted carbon black taught by Ikeda et al in the radiation curable ink jet ink compositions disclosed by WO '162.

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Claims 1-3, 5-7, 9-11, 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 03/027162 in view of Nagai in WO 02/102906. US 7,278,726 is relied upon for the disclosure of WO '906.

WO '162 discloses compositions for ink jet inks comprising a pigment, such as carbon black, radiation curable dispersant, mixture of (meth)acrylate monomers and photoinitiators. See pages 13-16. The radiation curable dispersant contains a polar component, such as an amine (page 8). Ink jet ink viscosity is taught on page 19, lines 17-26, and ink jet printing is taught on page 30. WO '162 does not mention the acid value or pH of the pigment employed.

Nagai discloses ink jet ink recording sets comprising two aqueous inks. Black pigments having a BET specific surface area from 50-300 m²/g and DBP oil absorption from 40 to 150 ml/100g are taught in column 15, lines 45-50. Acidic carbon blacks containing an anionic group in the form of a free acid and having a pH from 2-6 are taught in column 15, line 55, to column 16, line 14. See Preparation Examples 1 and 5. Ink A is preferably a black ink having an anionic group as free acid and, with an ink B containing a specific quaternary ammonium salt, provides excellent secondary color reproducibility on plain paper even at high speed (column 34, lines 15-26).

It would have been obvious to one skilled in the art at the time of the invention to employ the acidic carbon black taught by Nagai as the carbon black in the non-aqueous inks disclosed by WO '162. WO '162 teaches using carbon black pigments in the disclosed inks. Nagai teaches that acidic carbon black inks provide excellent secondary color reproducibility on plain paper even at high speed. One skilled in the art at the time of the invention would have been motivated

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by a reasonable expectation of taking advantage of the improvement in reproducibility taught by Nagai in the ink compositions and method taught by WO '162.

Allowable Subject Matter

Claims 13, 14 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. WO '162 discloses ink compositions wherein the reactive diluent is mainly mono-functional (meth)acrylates. WO '162 teaches using Solsperse 32000 as dispersant but does not mention using a dispersant containing amine or imine groups.

Conclusion

Yamada et al (7,135,504) is cited as art of interest. An ink jet ink composition comprising a dispersant and carbon black pigment is disclosed. See the description of carbon black in column 3, lines 3-52.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Suzuki et al (6,245,832) disclose ink jet inks comprising water, solvent, 0.5 to 10 wt % pigment and dispersant. Black pigments, including acidic carbon blacks DEGUSSA special black 6, 5, 4A and 4, are taught, preferably having a BET specific surface area from 80-200m²/g and DBP oil absorption from 50 to 180 ml/100g (column 5, line 36, to column 6, line16). Suzuki et al discuss nozzle clogging (column 10, line 53, to column 11, line 20). Krepski et al (5,840,106) disclose water-based pigmented inks comprising acidic pigments to provide a high quality printed image (column 3, lines 56-65 and Example 10).

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to /Susan W. Berman/ whose telephone number is 571 272 1067. The examiner can normally be reached on M-F 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571 272 1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SB
1/28/2009

/Susan W Berman/
Primary Examiner
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